IN THE DRAWINGS

Please cancel sheets 1 and 3 of the formal patent drawings file with the subject U.S. patent application and including Figs. 1a, 1b, 4 and 5, respectively. Please replace those sheets with the enclosed Replacement Sheets, also 1 and 3 and consisting of Figures 1a, 1b, 1c, 1d, 4a, 4b and 5.

REMARKS

Applicants, their principal representatives in Germany, and the undersigned have carefully reviewed the Office Action of November 17, 2008 in the subject US patent application, together with the prior art cited and relied on in the rejections of the claims. In response, the drawings, Substitute Specification and claims have been amended to overcome the objections noted by the Examiner and to more clearly patentably define the subject matter over the cited prior art relied on in the rejections of the claims. It is believed that the claims now pending in the application are patentable over the prior art cited and relied on. Reexamination and reconsideration of the application, and allowance of the claims is respectfully requested.

It is noted that the subject patent application is now assigned to Examiner Scott Haugland. The following brief summary of the subject invention is provided in an effort to assist Examiner Haugland in appreciating the differences between the subject invention and this prior art.

The subject invention is directed to a guide element for use in a web processing machine. Such guide elements are usable to support a web of material as that web is travelling through the web processing machine, such as a printing press. These webs of material, typically printed newspaper webs, are travelling at a high rate of speed. To reduce frictional drag between the guide elements and the web of material, an air cushion is formed between the surface of the guide element and the web of material. In the past, this has been accomplished by drilling a plurality of holes in the guide element and by passing compressed air through these holes. In this context, the Examiner is invited to review the discussion at paragraph 015 of the Substitute Specification.

The provision of a plurality of bores in the guide element has several drawbacks. Initially, as noted above, the resultant air cushion is not uniform over the surface of the guide

element. Also, the provision of a relatively small number of relatively large bores has required the provision of a relatively large volume of compressed air. Since compressed air is not free, the greater the amount of compressed air that is required the higher the production costs.

In most utilizations of the guide elements, these guide elements are engaged over substantially less than all of their circumferential surface by the web being guided. The rest of the circumferential surface, which is not engaged by the web merely exhausts compressed air to the atmosphere. This discharge of compressed air generates unwanted noise levels and also wastes compressed air.

Various turnable guide bars are well known in the prior art. These typically include some type of movable interior sleeve whose purpose is to block the flow of compressed air through that portion of the surface of the guide element which is not in contact with the web being guided. When the guide element is pivoted from one guide position to another guide position, this interior sleeve is somehow caused to rotate to block previously open bores and to open previously blocked bores. US Patent No 5,520,317, which is assigned to the assignee of the subject application, is an example of one such prior art device. Such devices are mechanically complicated and have often been prone to failure of the interior sleeve or tube to properly position itself.

The use of sinter materials to form guide elements is also generally known in the art. The Examiner is invited to note the discussion at paragraph 006 of the Substitute Specification. Such prior art guide elements, made entirely of a sinter material, present their own problems. The sinter material has a large number of micro-openings. However, these are randomly oriented in the sinter material and may provide uneven air distribution. In addition, sinter material is inherently not as strong as a rigid metal tube. It must thus have an increased wall

thickness that is apt to give rise increased resistance to fluid passage and which is apt to require higher air pressures.

In the subject invention, as recited in currently amended claim 34, and as depicted most clearly in Fig. 2, the guide element includes a rigid load bearing support 07 that has a support length and a full circumferential surface. That support includes a fluid permeable support material which is that length and full circumferential portion of the rigid load bearing support that is provided with the plurality of fluid passages 08 which terminate in the fluid openings 09, all as depicted in Fig. 2. As can be seen quite clearly, the fluid passages 08 and the fluid passages 09 extend over the full circumferential surface of the fluid permeable support material which is included in the rigid load bearing support. It will be understood that ends of the rigid load bearing support, which will not be engaged by the web of material being processed typically do not have the fluid permeable support material depicted in Fig. 2.

A coating of a micro-porous, fluid permeable, open pored sinter material covers the fluid permeable support material on the full circumferential surface of the rigid load bearing support. This coating is depicted schematically at 03 in Fig. 2. The coating has a plurality of micro openings which are sized to allow the emergence of a fluid under pressure over the full circumferential surface of the at least a portion of the support length of the guide element.

As recited in claim 34, the guide element is adapted to be positioned in a selected one of at least two angular positions in respect to a direction of web travel. In both of these two angular positions, the fluid under pressure continues to emerge from the full circumferential surface of the guide element. In other words, the fluid emerges from the plurality of micro-openings in the coating of the open pored sinter material, both in the area of the guide element which is wrapped by the web and also in the area of the guide element which is not wrapped by the web.

In contrast with prior devices such as the Eckert device, which have used slidable tubes and the like to cover over bores not being wrapped by the web, in the present invention the volume of air flow through the micro-openings is sufficient to provide the needed air cushion but is not so great as to be overly wasteful of the compressed air. It also does not generate the high noise levels that are typical with prior devices. The coating of the open-pored sinter material does not have to be overly thick since it is not required to be load bearing. This allows the coating to provide a finely dispersed air cushion without requiring a high pressure, high volume air supply, as has been the case in prior guide elements made entirely of a sinter material. The provision of the fluid permeable support material with its plurality of fluid openings, that underlie the coating of the micro-porous fluid permeable material provides uniform air flow, at a relatively low volume and pressure, to the coating of the micro-porous sinter material. The result is a guide element that is not wasteful of large volumes of compressed air, that is simple in construction, that does not require sliding or rotating inner tubes and in which the flow of compressed air does not have to be blocked in the areas which are not wrapped by the material web.

In the Office Action of November 17, 2008, the drawings were objected to under 37 CFR 1.84(a)(2) because the different views must have different numbers, each provided by "Fig." It was noted that Fig. 1 included four separate views and that Fig. 4 included two separate views.

There are submitted herewith replacement sheets of drawings in which each of the different views is identified by a separate number, proceeded by "Fig." The Substitute Specification has been amended to describe the four separate views in Fig. 1 and the two separate views in Fig. 4.

The drawings were also objected to under 37 CFR 1.83(a) as failing to show every feature of the claims. It was asserted that the means supporting the guide element recited in claim 34, line 17 must be shown, or the feature cancelled from the claims.

In response, Figs. 1c and 1d have been amended to depict an end 20 of the turning bar being connected by a swivel joint 22 to a turning bar holder 24 which is attached to a side frame 26 of the web-processing machine. Paragraph 026 of the Substitute Specification recites that the turning bar, or each turning bar is pivotable over 90°. In the Office Action, the Eckert patent, No 5,520,317 was cited as teaching the mounting of a guide element that is adapted to be positioned in a selected one of at least first and second angular positions in respect to a direction of web travel. The Eckert patent is, as noted above, assigned to the assignee of the subject application. The revision of Figs. 1c and 1d and the adoption of language to the Substitute Specification, that is similar to language used in the Eckert patent at column 3, lines 55-65 thereof is not new matter. This is because the Substitute Specification specifically recites that each turning bar is pivotable through at least 90°, as recited at paragraph 026. The addition of a specific prior art structure, to accomplish a disclosed function, is not new matter.

It is believed that the concurrently submitted replacement sheets of drawings overcome the Examiner's objections to the drawings. Their entry is respectfully requested.

During a review of the Substitute Specification, in the course of the preparation of this Second Amendment, various revisions have been made. While these are quite numerous, they are not substantive. They clarify the disclosure and are believed to render the disclosure more understandable. No new matter is being presented by these changes. Their entry is respectfully requested.

All of the claims were objected to because the term "micro" was misspelled in claim 34, line 9. That spelling error has been corrected.

All of the claims were rejected under 35 USC 112, second paragraph as being indefinite. It was noted that the limitation "said fluid permeable portion" recited at line 7 of claim 34 had no antecedent basis. The language of claim 34 has been revised to overcome that rejection.

Claims 34, 37, 39, 41, 43, 45-49, 53, 55, 57-59, 61, 63, 65, 67 and 69 were rejected under 35 USC 103(a) as being unpatentable over US Patent No. 6,364,247 to Polkinghorne in view of either US Patent No 5,957,360 to Helinski or US Patent No 5,293,699 to Faust and further in view of US Patent No 5,082,533 to Pulkowski and even further in view of US Patent No 5,520,317 to Eckert. It was asserted that Polkinghorne discloses a guide element of a web processing machine comprising a load bearing support 146 including a fluid permeable material with a plurality of fluid openings 154 in it. Polkinghorne was further asserted as disclosing a layer 130 of micro porous, fluid permeable open-pored material covering the load bearing support, and a plurality of micro openings 140 in the coating of the micro-porous air permeable material.

It was admitted in the Office Action that Polkinghorne does not disclose the layer of micro-porous material as being a sinter material. Polkinghorne was also admitted as not disclosing the means supporting the guide element adapted to be positioned in a selected one of two positions.

Helinski and Faust were each cited as forming a fluid flow restricting layer 68 or 34, respectively, of an air cushion forming web guide. This layer 68 or 34 was asserted as being a sinter material.

It was admitted that Polkinghorne does not show its asserted layer of micro-porous, fluid permeable, open pored material as a coating. The Pulkowski reference was relied on to show the formation of a sintered porous layer on a support by spray coating.

The Eckert reference was cited as teaching mounting a guide element for a web of material on means supporting the guide element adapted to be positioned in a selected one of first and second angular positions. These two angular positions were noted as being in respect to a direction of travel of the web.

It was asserted in the Office Action that it would be obvious to combine the Polkinghorne device with a layer of sinter material, as taught by either Helinski or Faust to restrict air flow with low noise generation. It was further asserted that it would have been obvious to substitute the layer of Polkinghorne with a coating as taught by Pulkowski, to improve manufacturing efficiency. It was further asserted that it would have been obvious to use the web guide of Polkinghorne, as modified by either Helinski or Faust, and as further modified by Pulkowski, in a manner as taught by Eckert. It is respectfully suggested that the contrived combination of either four or five references, in an effort to assert that the subject invention, as recited in currently amended claim 34, is obvious to one of skill in the art, is not sustainable for at least the following reasons.

Turning initially to the Polkinghorne reference, that document was discussed in detail in the Amendment After Final Rejection, filed August 28, 2008. The Examiner has noted that discussion and has asserted, in his Response to Arguments, that a coating is, by definition, a layer of material. It is asserted that the coating in the subject application is not discussed in terms of how it is formed or attached to the tube.

In the Substitute Specification, at paragraph 034, the micro-porous material 06 is recited as having "...been applied as a surface layer...". In paragraph 036 of the Substitute Specification, it is recited that the porous material has a layer thickness of less than 1mm. A layer thickness of between 0.05mm and 0.3mm is particularly advantageous.

While a coating does form a layer, a layer is not necessarily a coating. In the Polkinghorne reference, as discussed in detail in the prior Amendment After Final Rejection, there is shown a pneumatic flotation device for web processing. A tubular support 140 is provided with a plurality of spaced holes 154. A micro-porous sheet 130 is applied to the outer surface of that tubular support 146. The micro-porous sheet 130 includes two layers, an interior layer 134 of open weave metal wire cloth or fabric and a microporous outer layer 132. As is discussed in detail in the Amendment After Final Rejection, the microporous outer layer is itself formed as a nickel sheet that is produced using an electrodeposition process. In the Polkinghorne device, the multi-compound sheet includes a metal layer 132 with regularly spaced voids or apertures 140. This metal layer 132 is joined to an open weave metal fabric 134 which includes the open wire 134 as well as a cloth backing 186. This is not a coating, as that term is described in the Substitute Specification of the subject application.

In the Office Action of November 17, 2008, the Examiner initially recites that Polkinghorne shows an outer layer. He then recites that it shows a coating. It is tacitly acknowledged that if the layer of Polkinghorne is not a coating, then the Pulkowski reference teaches a sintered porous layer on a support by spray coating. It is quite clear that even the Examiner understands that the layer of Polkinghorne is not a coating, as that term is understood in the context of the subject application.

The Helinski and Faust references are cited to each show the use of a fluid flow restricting layer of an air cushion forming web guide of a sinter material. It is clear that both Helinski and Faust are thus cited for the purpose of being combined with Polkinghorne, which does not show a fluid flow restricting layer of a sinter material.

In Helinski, there is shown a system that is usable to support a flexible web during mount of the web. As may be seen in Fig. 6, there is provided an air film roll 50 that has a cylindrical

wall portion 52. The wall portion 52 has holes 54 through a portion of its surface. A substantial portion of the wall portion 52 of the roll 50 is provided with no such holes 54.

A multi-layered cover is removably positionable on the air film roll 50. The multi-layer cover includes a first porous layer 66 of thin stainless steel mesh. It has a second layer 68 which may be formed of a woven or sintered plaster material. The multi-layer cover has an outer layer 70 which is also porous. The multi-layer cover member is held in place about a portion of its associated air film roll 50 by a spring 50.

It is very clear that Helinski does not show a coating of a micro-porous fluid permeable, open pored sinter material covering the fluid permeable support material. That fluid permeable support material of the present invention has fluid openings extending over the full circumference of the support material. The coating of the micro-porous fluid permeable open-pored sinter material covers the full circumferential surface of the rigid load bearing support. In substantial contrast, Helinski shows an air pipe with only a part of its surface provided with fluid openings. That part of the air pipe is provided with a removable, multi-layer cover which includes at least three separate components. The combination of Polkinghorne and Helinski would not result in a structure similar to that recited in currently amended claim 34. At best, the multi-layer cover of Helinski would be a substitute for the multi-layer cover of Polkinghorne.

The secondary reference to Faust, US Patent No 5,293,699 is directed to an apparatus for use in guiding a coated material strip. In Fig. 4, which is presumed to be the embodiment on which the Examiner is relying, there is shown a third embodiment of an air guide element, generally at 33. A tubular manifold 6 is provided with air openings 8 only about a small portion of its circumference, as is shown quite clearly in Fig. 4. A plurality of sliding seals 21 define an annular chamber between an outer surface of the tubular manifold 6 and an air-permeable jacket 34 of sintered material or porous glass. A protective jacket 22 encloses the air

permeable jacket 34 over more of its circumference. The only portion of the air-permeable jacket 34, through which air can pass, is the small arcuate portion not bounded by the protective jacket 22. As is discussed at the top of column 6 of the Faust reference, only one planar face 35 of the air permeable jacket 34 is intended to be used at any particular time. The air-permeable jacket 34 is rotatable on the tubular manifold 6. It is very clear that the air-permeable jacket 34 of Faust is not a coating, as that term is used in the subject application. In Faust, the air-permeable jacket 34 is self-supporting. It is spaced from the tubular manifold 6 by the sliding seals 21. It is rotatable with respect to the tubular manifold 6. Only a small portion of the circumference of the tubular air-permeable jacket 34 is not overlaid with the protective jacket 22. It is readily apparent that the substitution of the air-permeable jacket 34 of Faust in the Polkinghorne reference would not result in a structure that would render obvious the subject invention, as recited in currently amended claim 34. Merely because the term "sinter" is present in a document does not mean that the document is relevant to the subject invention.

The Eckert reference clearly shows the mounting of a web guide element for movement between several positions. Such a mounting is well known in the art. Eckert also very clearly shows an outer tube 2 that has a plurality of well-defined, separate air openings. A cup-shaped slide 22 is positioned in the interior of the outer tube 2 and is slidable along the axial length of the outer tube 2. This axial movement of the slide 22 can bring selected ones of air openings 48, 49, 50 and 51 of the slide into alignment with selected ones of the air openings 11, 12, 13 and 14 of the outer tube 2. As the turning bar 1 is moved between selected positions, the inner cup 22 is caused to slide in the outer tube 2 to selectively align air holes so that air will exit the turning bar 1 only in the area of the turning bar 1 which is in engagement with the web.

The turning bar structure shown in the Eckert device is the type of arrangement which the subject invention is intended to replace. Eckert is a relatively complicated mechanical structure that requires the selective opening and closing of air ports so that the compressed air

will form an air cushion only along the portion of the turning bar that is actually in engagement with the web. In marked contrast, the subject invention has no moving parts, no inner and outer sliding tubes, no separate jackets or layers and no fasteners, clips, holders or the like. The provision of a rigid load bearing support with a fluid permeable support material over its full outer support surface means that air exits the rigid support, over its entire surface, all of the time. As is further recited in currently amended claim 34, the coating of the micro-porous, fluid permeable open-pored sinter material covers the fluid permeable support material on its full circumferential outer surface. The result is a guide element in which a finely diffused cushion of air is formed about the entire circumferential surface of the guide element all of the time. This finely diffused air cushion is not wasteful of air and does not generate high noise levels. It results in a simple, durable, trouble-free guide that is at the same time, cost effective and which does not create any noise pollution. Such a structure could not result from the combination of Polkinghorne, Helinski or Faust and Eckert, as advanced by the Examiner.

The reference to Pulkowski, US Patent No 5,082,533 appears to have been cited as teaching the application of a sinter material, as a coating, to a load bearing support allegedly to improve manufacturing efficiency. In the Pulkowski reference, there is shown a device that is usable to remove fluid from a fibrous web. The fibrous web W passes between a press member 12 and a press shoe 18. A blanket 14 urges the web W into engagement with the press member 12 to thereby expel liquid, typically as a vapor. The press member 12 can be provided with one or two coaxial layers 26 and 28. The second layer 28 defines the pressing layer and may be a sintered material. It has a thickness of at least 0.005 inches. It may be applied by a spray-coating technique. The inner layer 26, which forms the body of the press member 12, can have a plurality of grooves 38, 39 and 40. These are usable to remove fluid in the liquid phase away from the web, as is discussed at column 6, lines 25-31.

The Pulkowski reference is not directed to a web guide that uses an air cushion to support the web out of physical contact with the guide. Instead, Pulkowski is directed to a pressing roller whose purpose is to forcefully contact a web and to squeeze liquid out of the web. The coating of the sinter material 28 on the press member 12 of Pulkowski is not usable to diffuse outwardly directed compressed air into the web. At best, it is usable to allow liquid, that has been squeezed out of the web, to pass through its pores and into the grooves 38, 39 and 40 which have been formed on the exterior surface of the pressing member.

It would not be obvious to one of skill in the art to somehow combine the Pulkowski reference with any of the four other references. All of Polkinghorne, Helinski and Faust rely on separable, self-sustaining layers or jackets. The sinter material tube of Faust is rotatable with respect to its inner support. It is not a sprayed-on coating. It would not work, as disclosed, if it were a sprayed on coating. There is no basis to suggest that the coating of Pulkowski could be substituted for the Helinski and/or Faust devices. The reasons asserted by the Examiner for that substitution come from the teachings of the subject application, not from any disclosure in the references. The combination of five references, as advanced by the Examiner is contrived, inaccurate and does not teach or suggest the structure of the subject invention, as recited in currently amended claim 34. It is respectfully submitted that claim 34 is patentable over the prior art cited and relied on.

All of the rest of the claims now pending in the subject application depend from believed allowable, currently amended claim 34. They are thus also believed to be allowable.

SUMMARY

The drawings have been amended, without the addition of new matter, to show each figure with a separate figure identifier. The means supporting the guide element have been added to Figs. 1c and 1d. These means are generally well-known in the art, as exemplified by the prior art Eckert patent relied on by the Examiner. The depiction of these known support means does not constitute any new matter.

The Substitute Specification has been revised to add a description of each of the newly added figure numbers. The Substitute Specification has also been amended to set forth a discussion of the means supporting the guide elements. Further, the Substitute Specification has been amended to correct various phrasing issues and to improve the overall understanding of the disclosure. None of these changes and additions constitutes any new matter.

Independent claim 34 and several of the dependent claims have been amended. For the reasons set forth above, it is believed that the claims which are now pending in the subject application are patentable over the prior art cited and relied on, taken either singly or in combination. Allowance of the claims, and passage of the application to issue is respectfully requested.

Respectfully submitted,

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